UNITED STATES MARINE CORPS

AVIATION TRAINING BRANCH
TRAINING COMMAND
MARINE CORPS COMBAT DEVELOPMENT COMMAND
QUANTICO, VIRGINIA 22134-5050

H53 POWERPLANT INTERMEDIATE MAINTENANCE

MOS 6123 MAINTENANCE TRAINING

A.01 (A thru C)	Special / Support Equipment
A.02 (A1 thru B)	Safety Precautions and Procedures around the work center
A.03 (A,C,E,F,I,L, HH,II,JJ,)	Aircraft Publications, Diagrams, Sketches, and Drawings
A.04 (A thru I)	Precision Measuring Equipment
B.01 (B thru D)	Scheduled / Unscheduled Inspections
B.03 (A thru D)	Corrosion Control
B.04 (A thru D-31)	Compressor Section
B.05 (A thru D-15)	Combustion Section
B.06 (A thru C-21)	Turbine Section
B.07 (A thru D-8)	Exhaust Section
B.08 (A thru C-3)	Reduction gear/Accessory Drive Section
B.09 (A thru B-10)	Main Fuel System
B.10 (A thru C-3)	Lubrication System
B.11 (A thru B-7)	Electrical System
B.12 (A thru B-3)	Ignition System
B.13 (A thru B-6)	Bleed Air System
B.14 (A thru B-11)	Tire and Wheel

MOS 6123 LESSON GUIDES

LESSON GUIDE NUMBER: MOS 6123 A.1 (A thru C)
SUPPORT/SPECIAL EQUIPMENT

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A. LECTURE NUMBER: CH-53/MOS 6123/A.1 (A thru C)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: 3000 engine transfer trailer/engine maintenance stands/engine adapters

F. Objective: To ensure that the students comprehend the importance and knowledge of the support/special equipment.

G. Instructional aids: Applicable pieces of equipment as required by reference material

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: give brief explanation of the purpose and use of support and special equipment.
2. Explain the function and capabilities of the equipment.

J. Summary: The purpose of the lesson was to ensure the student has a good working knowledge of the support/special equipment.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 A.2 A1-A5,B
SAFETY PRECAUTIONS AND PROCEDURES AROUND THE WORK CENTER

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A. LECTURE NUMBER: CH-53/MOS 6123/A.2 (A1 thru A5, B)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: First Aid procedures/Hazardous material/waste/safety procedures near electricity/personal protective equipment (Safety/flight boots, clothing, hearing/eye protection, etc.) markings/Safety markings/Hydraulic contamination

F. Objective: To ensure that all personnel are aware of HAZMAT and waste regulations, first aid procedures and basic personal safety, and the purpose of the hydraulic contamination program. Therefore providing for safe efficient operation of the aircraft and personnel.

G. Instructional aids: Plastic/Metal caps and plugs

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: Explain the purpose of the HAZMAT/Waste disposal, and Hydraulic contamination programs. In addition include the importance of knowing First Aid.
2. Explain the difference between HAZMAT and HAZMAT waste.
3. Explain the storage procedures for HAZMAT waste and HAZMAT.
4. Explain the disposal procedures for HAZMAT waste and the consequences for improperly disposing HAZMAT waste.
5. Discuss the types of HAZMAT/Waste that are used in the work center and the safety procedures concerning them.
6. Discuss what causes hydraulic contamination.
7. Explain how hydraulic contamination pertains to our shop.
8. Discuss measure that can be taken to prevent hydraulic contamination.
9. Explain the purpose of knowing first aid.

J. Summary: Special care should be taken when working around hydraulic systems and fluids. Contamination could cause aircraft systems to fail and result in loss of life and aircraft. Therefore, all methods of detection and control should be used in accomplishing this objective. Also, properly storing, handling and the disposing of HAZMAT/Waste is the responsibility of all personnel in the work center. By strict adherence to the regulations, we can make the shop and our environment a cleaner and safer place to be. Lastly, knowing first aid is extremely important. It is highly recommended that everyone keeps current on the qualifications such as CPR etc.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123/A.3 (A,C,E,F,I,L,HH,JJ)
PUBLICATIONS, DIAGRAMS, SKETCHES, AND DRAWINGS

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A. LECTURE NUMBER: CH-53/MOS 6123/A.3 (A,C,E,F,I,L,HH,JJ)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Technical Publications Library Program

F. Objective: To ensure the student gains an understanding of the TPL operation and proper procedures required for an effective TPL program.

G. Instructional aids: TPL table of contents binder and most recent TPL changes

H. References:

1. OPNAVINST 4790.2
2. NA01-1A-509
3. NA17-1-125
4. NA15-01-500
5. NA01-230HM-8
6. NAVAIRINST 4790.8
7. NA02B-105AJB-6-1/-4

I. Presentation:

1. Introduction: Explain the purpose of the TPL program and how it is the work centers responsibilities for the upkeep of these publications.
2. Discuss manuals and their maintenance, changes and IRACS. Use example of a current change or IRAC to better explain the procedures for inserting them into the publications.
3. Discuss the responsibilities of the TPL NCO and shop personnel to ensure the best possible TPL program for the work center.

J. Summary: In this lesson we covered the purpose of the TPL program, upkeep of manuals and responsibilities pertaining to the TPL program. TPL is a vital key to the squadron’s operational capabilities so it is an all hands effort to keep the publications in the best possible condition.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 A.4 A-I
PRECISION MEASURING EQUIPMENT METROLOGY AND CALIBRATION PROGRAM

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A. LECTURE NUMBER: CH-53/MOS 6123/A.4 (A-I)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Operation of pressure gauges/depth micrometer/scheduling gauges/vernier scales/dial indicators/C-Fram micrometers/NFT-2 tester/seal leak test kit/carbon seal tester

F. Objective: To ensure that all personnel have a working knowledge of precision measuring equipment.

G. Instructional aids:

1. Pressure gauge
2. Depth MIC
3. Vernier scale
4. Seal leak tester

H. References: NA02B-105AJB-6-1

I. Presentation:

1. Introduction: Give a brief explanation on the purpose of precision measuring equipment and the proper handling of these calibrated tools.
2. Explain how all PME works and the proper way to read these tools.

J. Summary: The purpose of this lesson was to ensure that all personnel understand the calibration of these tools and that proper handling is maintained throughout the use of these tools.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.1 (B thru D)
SCHEDULED/UNSCHEDULED INSPECTIONS

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A. LECTURE NUMBER: CH-53/MOS 6123/B.1 (B thru D)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: QEC/Pre-induction inspection/acceptance inspection/preservation and de-preservation of aircraft engines.

F. Objective: To familiarize personnel with the information for intermediate maintenance personnel to further their understanding of preservation and de-preservation along with knowing the procedures for the different types of inspection procedures required for a QEC.

G. Instructional aids: Serialization

H. References: NA 02B-105AJB-6-1

I. Presentation:

1. Introduction: Give a brief explanation of the purpose of correct preservation and de-preservation and proper inspection procedures.
2. Explain how to properly preserve and de-preserve the T64 Power Package and all the components.
3. Explain how to properly inspect a QEC for pre-induct, acceptance and transfer

J. Summary: The purpose of this lesson is to inform all personnel how to correctly preserve and de-preserve the T64 Power Package along with the proper required inspection steps.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.3 A-D
CORROSION CONTROL

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A. LECTURE NUMBER: CH-53/MOS 6123/B.3 (A-D)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Corrosion Control

F. Objective: The prevention of corrosion is a continuing effort that therefore requires that all personnel are familiar with the prevention of corrosion and what to do when corrosion is found.

G. Instructional aids: Aircraft parts and/or SE gear that is corroded.

H. References: NA 01-1A-509

I. Presentation:

1. Introduction: Define corrosion and discuss the factors that contribute to the cause of corrosion. Also discuss the prevention of corrosion.
2. Discuss the elements needed for corrosion to occur.
3. Discuss the different types of corrosion and the different types of corrosive environments.

J. Summary: Corrosion can severely damage aircraft components and cause them to fail resulting in injury or possible death. By properly treating corrosion at the earliest possible stage its harmful affects can be avoided.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.4 A THRU D
COMPRESSOR SECTION

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A. LECTURE NUMBER: CH-53/MOS 6123/B.4 (A-D)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Compressor Section

F. Objective: To familiarize you with the entire compressor section including the compressor casings and VGA’s.

G. Instructional aids:

1. T64 Engine
2. Compressor Casings
3. Compressor Rotor
4. VGA linkage assembly
5. All operational bearings
6. T64 flip chart

H. References: NA-02B-105AJB-6-1/-4

I. Presentation:

1. Introduction: Describe the purpose of the compressor section and give an in depth description on how the compressor section components work in conjunction with each other.
2. Discuss the components that make up the compressor section. Give the purpose, type, and location of all the related compressor section parts.

J. Summary: The objective of this lesson was to familiarize all personnel with the construction and purpose of the compressor section components. In striving to do so we discussed the type, location, purpose and components of the compressor section. By better understanding the overall operation of this section you will come to comprehend the T64 Engine much better.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.5 A THRU D
COMBUSTION SECTION

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A. LECTURE NUMBER: CH-53/MOS 6123/B.5 (A-D)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Combustion Section

F. Objective: To familiarize you with the combustion section.

G. Instructional aids:

1. T64 Engine
2. Combustion Chamber
3. T64 Flip Chart

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: Describe the purpose of the combustion section and give a brief description of it.
2. Discuss the components that make up the combustion section.
3. Explain the function of the components that make up the combustion section. Discuss the special attention to inspections in the combustion section.

J. Summary: The combustion section is an important section of the T64 engine. By gaining a better understanding of its purpose and operation, you can better understand the operation of the engine.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.6 A THRU C
TURBINE SECTION

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A. LECTURE NUMBER: CH-53/MOS 6123/B.6 (A-C)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Turbine Section

F. Objective: To familiarize you with the turbine section of the T64 engine.

G. Instructional aids:

1. T64 Engine
2. PT rotor
3. GG Rotor
4. T64 flip chart

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: Describe the purpose of the turbine section and give a brief description of it.
2. Discuss the components that make up the turbine section.
3. Discuss the special attention that would be applied when inspecting the turbine section.

J. Summary: The turbine section is an important section of the T64 engine. By gaining a better understanding of its purpose and operation, you can better understand the overall operation of the engine.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.7 A THRU D
EXHAUST SECTION

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A. LECTURE NUMBER: CH-53/MOS 6123/B.7 (A-D)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Exhaust Section

F. Objective: To familiarize you with the exhaust section of the T64 engine.

G. Instructional aids:

1. T64 Engine
2. Exhaust frame
3. T64 flip chart

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: Describe the purpose of the exhaust section and give a brief description of it.
2. Discuss the components that make up the exhaust section.
3. Discuss the special attention that would be applied when inspecting the exhaust section.

J. Summary: The exhaust section is an important section of the T64 engine. By gaining a better understanding of its purpose and operation, you can better understand the overall operation of the engine.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.8 A THRU C
REDUCTION GEAR/ACCESSORY DRIVE SECTION

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A. LECTURE NUMBER: CH-53/MOS 6123/B.8 (A-C)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Reduction drive/accessory section

F. Objective: To familiarize you with the location and function of all the components that makes up the accessory section.

G. Instructional aids:

1. T64 Engine
2. T64 flip chart

H. References:

1. NA-02B-105AJB-6-1
2. A1-700PA-290-000

I. Presentation:

1. Introduction: Describe the purpose of the accessory section and give a brief description of it.
2. Discuss the components that make up the accessory section.
3. Explain the function of the components that make up the accessory section.
4. Discuss the inspection procedures for the accessory section.

J. Summary: The accessory section is an integral part of the T64 engine. By gaining a better understanding of its purpose and operation, you can better understand the overall operation of the engine.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.9 A THRU B
MAIN FUEL SYSTEM

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A. LECTURE NUMBER: CH-53/MOS 6123/B.9 (A-B)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Main fuel system

F. Objective: The objective of this class is to familiarize each member of the class with the function of the fuel system and its components.

G. Instructional aids:

1. T64 Engine
2. T64 flip chart
3. Fuel pump
4. Fuel flow divider
5. Fuel manifold/nozzle
6. Fuel flow transmitter
7. Fuel control

H. References:

1. NA-02B-105AJB-6-1
2. NA-02B-105AJB-4

I. Presentation:

1. Introduction: The purpose of the main fuel system is to deliver a predetermined amount of fuel to the engine during all phases of operation.
2. The fuel system pressurizes and schedules fuel to the combustor and provides pressurized fuel for the operation of the variable geometry actuators.
3. Discuss they type of fuel pump and how the fuel is filtered.

J. Summary: During this lesson, we discussed the fuel system and its components. By better understanding the fuel system, we can keep the engine running smoothly and efficiently during all operating conditions.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.10 A THRU C
LUBRICATION SYSTEM

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A. LECTURE NUMBER: CH-53/MOS 6123/B.10 (A-C)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Lubrication system

F. Objective: To ensure the student gains an understanding of the lubrication system, its components and their relationship on the T64.

G. Instructional aids:

1. T64 Engine
2. T64 flip chart
3. Lube pump/filter assembly

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: Give a brief explanation of the purpose of the 8 elements of the lube system.
2. Show on the engine the routing of both lubricating and scavenge oil.

J. Summary: The purpose of this lesson was to ensure each student gained an understanding of the lubrication system and its purpose on the T64 engine.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.11 A THRU B
ELECTRICAL SYSTEM

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A. LECTURE NUMBER: CH-53/MOS 6123/B.11 (A-B)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Electrical system

F. Objective: To ensure all personnel gain an understanding of the T64 electrical system, its components and their relationship on the T64 engine.

G. Instructional aids:

1. T64 Engine
2. T64 flip chart
3. Wiring harness
4. Ng Tachometer
5. Chip detector

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: State the 10 items that make up the electrical system on the T64 engine.
2. Describe and explain the operation and cover inspection procedures for each time of the T64 electrical system.

J. Summary: By explaining the electrical system components and how they work has given you a better understanding of the T64 electrical system.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.12 A THRU B
IGNITION SYSTEM

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A. LECTURE NUMBER: CH-53/MOS 6123/B.12 (A-B)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Ignition system

F. Objective: To familiarize personnel with the T64 ignition system.

G. Instructional aids:

1. Related ignition components
2. T64 flip chart

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: Describe the purpose of the igniter plugs and all other major ignition components.
2. Describe the purpose of the exciter box and give a general description of how it works.

J. Summary: The purpose of the lesson was to ensure the student has a good working knowledge of the T64 ignition system.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.13 A THRU B
BLEED AIR SYSTEM

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A. LECTURE NUMBER: CH-53/MOS 6123/B.13 (A-B)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Bleed air system

F. Objective: To familiarize personnel with the bleed air system of the T64 engine.

G. Instructional aids: T64 Engine

H. References: NA-02B-105AJB-6-1

I. Presentation:

1. Introduction: give brief explanation of the purpose and use of bleed air system.
2. Explain the function and capabilities of the bleed air system.

J. Summary: The purpose of the lesson was to ensure the student has a clear understanding of the bleed air system.

K. Question and Answer period.

LESSON GUIDE NUMBER: MOS 6123 B.14 A THRU B
POWER PLANT INSTALLATION

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A. LECTURE NUMBER: CH-53/MOS 6123/B.14 (A-B)

B. Time: 1 Hour

C. Date prepared: Aug 04

D. Date reviewed and revised: Aug 04

E. Title of Lecture: Power plant installation

F. Objective: To familiarize the student with the QEC assembly.

G. Instructional aids: Assembled QEC installed on engine.

H. References: A1-700PA-290-000

I. Presentation:

1. Introduction: Explain the purpose of a T64 QEC assembly and give a brief explanation of how it works.
2. Explain the purpose of a nose gearbox and be sure to include the purpose or function of any major components.

J. Summary: This period of instruction was to give the student a basic working knowledge of the quick engine change assembly.

K. Question and Answer period.